CLAIMS

1. A software development tool for embedded computer systems, wherein said software development tool, which is operable to run on a computer equipped with a user interface, comprises:

- a repository of configurable pre-programmed software components, called embedded system infrastructure components (ESICs), each of which is a self-contained object comprising an underlying modular code base and configuration structure related to a specific infrastructure function in a hardware-independent, non-operating-system software infrastructure for an embedded computer system;

- a selection tool for enabling user selection of a number of ESICs from the repository;

- a configuration tool for enabling user configuration, for each selected ESIC, of the corresponding infrastructure function based on the underlying configuration structure of the ESIC in order to match the requirements of a target application; and

- a code generator for extracting, for each selected ESIC, source code for the embedded system software infrastructure as a subset of the modular code base of the ESIC based on the user-selected configuration settings.

2. The software development tool according to claim 1, further comprising means for enabling user-selected interconnection of a number of configured ESICs and wherein said code generator is operable for generating separate source code relating to the interconnection of the ESICs based on at least part of the configuration settings of the involved ESICs.

3. The software development tool according to claim 2, further comprising a number of configurable, pre-programmed ESIC connection components (ECs), each of which is a self-contained object comprising an underlying modular code base and a connection structure related to the interconnection of given ESICs, wherein said connection structure defines configuration dependencies between the configuration

structures of the given ESICs, and said code generator is operable for extracting, for each user-selected EC, source code from the EC code base based on the ESIC configuration settings related to the connection structure of the EC.

5   4.   The software development tool according to claim 1, wherein said configuration tool is operable for providing direct user feedback on the effects of a configuration setting in terms of at least one of resulting code size, execution speed, memory consumption, specific restrictions and performance trade-offs.

10   5.   The software development tool according to claim 1, wherein at least one ESIC is provided with a first configurable interface towards underlying hardware/lower-level functions and a second configurable interface towards the target application, and said configuration tool is operable for enabling user configuration of said first hardware interface and said second application interface, and said code generator is operable for 15   extracting source code for said interfaces based on the user-selected configuration settings of the interfaces.

6.   The software development tool according to claim 1, wherein each ESIC further comprises a representation of the mapping between the configuration structure and the 20   modular code base, and said code generator is operable for determining which parts of the modular code base to extract as source code based on the mapping representation in combination with user-selected configuration settings.

7.   The software development tool according to claim 6, wherein said modular code 25   base is defined by a number of code blocks, and said mapping representation comprises, for at least one of said code blocks, a condition for extraction as source code that is based on at least part of said configuration structure, and said code generator is operable for determining whether said condition is valid in response to the corresponding configuration settings.

8. The software development tool according to claim 1, wherein a first, so-called inner ESIC is encapsulated into a second, so-called outer ESIC by means of a reference to the inner ESIC in the outer ESIC, and said inner ESIC is configured based on the configuration settings of the outer ESIC.

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9. The software development tool according to claim 8, wherein said inner ESIC is configured by said outer ESIC via template selection, said outer ESIC having a number of predetermined templates for configuring said inner ESIC and one of said templates being selected based on the configuration settings of the outer ESIC.

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10. The software development tool according to claim 1, wherein at least one ESIC comprises, in the modular code base, code for multiple implementations of a given sub-function, and said configuration tool is operable for enabling user configuration of the infrastructure function of the ESIC with respect to the type of implementation to be used for the given sub-function.

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11. The software development tool according to claim 1, wherein at least one ESIC has a callback that can be called during execution of the infrastructure function of the ESIC and enable temporary application-specific processing.

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12. The software development tool according to claim 1, wherein each ESIC further comprises underlying documentation information, and said software development tool further comprises a documentation tool for generating, for each selected ESIC, documentation adapted to the selected configuration settings of the ESIC.

13.   The software development tool according to claim 1, further comprising:

-    means for generating, for at least one source code file generated by the code generator, a source code signature representative of the corresponding ESIC and the user-selected configuration settings; and

5   -   means for re-creating the ESIC set-up based on the source code signature.

14.   The software development tool according to claim 1, further comprising means for generating, for at least one source code file generated by the code generator, a source code checksum to enable verification that the source code file has not been tampered with.

15.   The software development tool according to claim 1, wherein said configuration tool is operable for presenting a number of configuration options automatically based on the underlying configuration structure of the ESIC, and for receiving, via the user interface, user-selected configuration settings in response to the presented options.

16.   The software development tool according to claim 15, wherein the configuration structure of an ESIC object is defined by means of an extensible description language and at least one configuration page with said configuration options is automatically generated from the extensible description language definition of the configuration structure by an extensible description language transformer.

17.   The software development tool according to claim 16, wherein said extensible description language is XML (eXtensible Markup Language), said extensible description language transformer is an XSLT (eXtensible Stylesheet Language Transformation) processor, and said at least one configuration option page is provided in HTML (Hyper Text Markup Language) format.

18.   The software development tool according to claim 1, wherein said software development tool is carried by a computer-readable medium.